

# PATENT COOPERATION TREATY

# PCT

## INTERNATIONAL PRELIMINARY REPORT ON PATENTABILITY

(Chapter I of the Patent Cooperation Treaty)

(PCT Rule 44bis)

Applicant's or agent's file reference <b>PHUS030198WO</b>	<b>FOR FURTHER ACTION</b>	See item 4 below
International application No. <b>PCT/IB2004/050984</b>	International filing date ( <i>day/month/year</i> ) <b>23 June 2004 (23.06.2004)</b>	Priority date ( <i>day/month/year</i> ) <b>27 June 2003 (27.06.2003)</b>
International Patent Classification (8th edition unless older edition indicated) See relevant information in Form PCT/ISA/237		
Applicant <b>KONINKLIJKE PHILIPS ELECTRONICS, N.V.</b>		

1.	This international preliminary report on patentability (Chapter I) is issued by the International Bureau on behalf of the International Searching Authority under Rule 44 bis.1(a).																								
2.	This REPORT consists of a total of 7 sheets, including this cover sheet.  In the attached sheets, any reference to the written opinion of the International Searching Authority should be read as a reference to the international preliminary report on patentability (Chapter I) instead.																								
3.	<p>This report contains indications relating to the following items:</p> <table style="width: 100%;"> <tr> <td style="width: 10%; text-align: center;"><input checked="" type="checkbox"/></td> <td style="width: 30%;">Box No. I</td> <td style="width: 60%;">Basis of the report</td> </tr> <tr> <td style="text-align: center;"><input type="checkbox"/></td> <td>Box No. II</td> <td>Priority</td> </tr> <tr> <td style="text-align: center;"><input type="checkbox"/></td> <td>Box No. III</td> <td>Non-establishment of opinion with regard to novelty, inventive step and industrial applicability</td> </tr> <tr> <td style="text-align: center;"><input type="checkbox"/></td> <td>Box No. IV</td> <td>Lack of unity of invention</td> </tr> <tr> <td style="text-align: center;"><input checked="" type="checkbox"/></td> <td>Box No. V</td> <td>Reasoned statement under Article 35(2) with regard to novelty, inventive step or industrial applicability; citations and explanations supporting such statement</td> </tr> <tr> <td style="text-align: center;"><input type="checkbox"/></td> <td>Box No. VI</td> <td>Certain documents cited</td> </tr> <tr> <td style="text-align: center;"><input type="checkbox"/></td> <td>Box No. VII</td> <td>Certain defects in the international application</td> </tr> <tr> <td style="text-align: center;"><input checked="" type="checkbox"/></td> <td>Box No. VIII</td> <td>Certain observations on the international application</td> </tr> </table>	<input checked="" type="checkbox"/>	Box No. I	Basis of the report	<input type="checkbox"/>	Box No. II	Priority	<input type="checkbox"/>	Box No. III	Non-establishment of opinion with regard to novelty, inventive step and industrial applicability	<input type="checkbox"/>	Box No. IV	Lack of unity of invention	<input checked="" type="checkbox"/>	Box No. V	Reasoned statement under Article 35(2) with regard to novelty, inventive step or industrial applicability; citations and explanations supporting such statement	<input type="checkbox"/>	Box No. VI	Certain documents cited	<input type="checkbox"/>	Box No. VII	Certain defects in the international application	<input checked="" type="checkbox"/>	Box No. VIII	Certain observations on the international application
<input checked="" type="checkbox"/>	Box No. I	Basis of the report																							
<input type="checkbox"/>	Box No. II	Priority																							
<input type="checkbox"/>	Box No. III	Non-establishment of opinion with regard to novelty, inventive step and industrial applicability																							
<input type="checkbox"/>	Box No. IV	Lack of unity of invention																							
<input checked="" type="checkbox"/>	Box No. V	Reasoned statement under Article 35(2) with regard to novelty, inventive step or industrial applicability; citations and explanations supporting such statement																							
<input type="checkbox"/>	Box No. VI	Certain documents cited																							
<input type="checkbox"/>	Box No. VII	Certain defects in the international application																							
<input checked="" type="checkbox"/>	Box No. VIII	Certain observations on the international application																							
4.	The International Bureau will communicate this report to designated Offices in accordance with Rules 44bis.3(c) and 93bis.1 but not, except where the applicant makes an express request under Article 23(2), before the expiration of 30 months from the priority date (Rule 44bis .2).																								

<p style="text-align: center;">The International Bureau of WIPO 34, chemin des Colombettes 1211 Geneva 20, Switzerland</p> <p>Facsimile No. +41 22 740 14 35</p>	<p>Date of issuance of this report <b>03 January 2006 (03.01.2006)</b></p> <p>Authorized officer  <b>Idhir Britel</b></p> <p>Telephone No. +41 22 338 70 60</p>
--	---

# PATENT COOPERATION TREATY

REC'D 01 MAR 2005	
WIPO	PCT

From the  
INTERNATIONAL SEARCHING AUTHORITY

PCT

To:

see form PCT/ISA/220

WRITTEN OPINION OF THE  
INTERNATIONAL SEARCHING AUTHORITY  
(PCT Rule 43bis.1)

Date of mailing  
(day/month/year) see form PCT/ISA/210 (second sheet)

Applicant's or agent's file reference  
see form PCT/ISA/220

**FOR FURTHER ACTION**  
See paragraph 2 below

International application No.  
PCT/IB2004/050984

International filing date (day/month/year)  
23.06.2004

Priority date (day/month/year)  
27.06.2003

International Patent Classification (IPC) or both national classification and IPC  
G06T7/00, G06T5/00

Applicant  
KONINKLIJKE PHILIPS ELECTRONICS, N.V.

1. This opinion contains indications relating to the following items:

- ☒ Box No. I Basis of the opinion
- ☐ Box No. II Priority
- ☐ Box No. III Non-establishment of opinion with regard to novelty, inventive step and industrial applicability
- ☐ Box No. IV Lack of unity of invention
- ☒ Box No. V Reasoned statement under Rule 43bis.1(a)(i) with regard to novelty, inventive step or industrial applicability; citations and explanations supporting such statement
- ☐ Box No. VI Certain documents cited
- ☐ Box No. VII Certain defects in the international application
- ☒ Box No. VIII Certain observations on the international application

2. **FURTHER ACTION**

If a demand for international preliminary examination is made, this opinion will usually be considered to be a written opinion of the International Preliminary Examining Authority ("IPEA"). However, this does not apply where the applicant chooses an Authority other than this one to be the IPEA and the chosen IPEA has notified the International Bureau under Rule 66.1bis(b) that written opinions of this International Searching Authority will not be so considered.

If this opinion is, as provided above, considered to be a written opinion of the IPEA, the applicant is invited to submit to the IPEA a written reply together, where appropriate, with amendments, before the expiration of three months from the date of mailing of Form PCT/ISA/220 or before the expiration of 22 months from the priority date, whichever expires later.

For further options, see Form PCT/ISA/220.

3. For further details, see notes to Form PCT/ISA/220.

Name and mailing address of the ISA:



European Patent Office - Gitschiner Str. 103  
D-10958 Berlin  
Tel. +49 30 25901 - 0  
Fax: +49 30 25901 - 840

Authorized Officer

Gao, M

Telephone No. +49 30 25901-404



**WRITTEN OPINION OF THE  
INTERNATIONAL SEARCHING AUTHORITY**

International application No.  
PCT/IB2004/050984

---

**Box No. I Basis of the opinion**

---

1. With regard to the **language**, this opinion has been established on the basis of the international application in the language in which it was filed, unless otherwise indicated under this item.
  - ☐ This opinion has been established on the basis of a translation from the original language into the following language , which is the language of a translation furnished for the purposes of international search (under Rules 12.3 and 23.1(b)).
2. With regard to any **nucleotide and/or amino acid sequence** disclosed in the international application and necessary to the claimed invention, this opinion has been established on the basis of:
  - a. type of material:
    - ☐ a sequence listing
    - ☐ table(s) related to the sequence listing
  - b. format of material:
    - ☐ in written format
    - ☐ in computer readable form
  - c. time of filing/furnishing:
    - ☐ contained in the international application as filed.
    - ☐ filed together with the international application in computer readable form.
    - ☐ furnished subsequently to this Authority for the purposes of search.
3. ☐ In addition, in the case that more than one version or copy of a sequence listing and/or table relating thereto has been filed or furnished, the required statements that the information in the subsequent or additional copies is identical to that in the application as filed or does not go beyond the application as filed, as appropriate, were furnished.
4. Additional comments:

BEST AVAILABLE COPY

**WRITTEN OPINION OF THE  
INTERNATIONAL SEARCHING AUTHORITY**

International application No.  
PCT/IB2004/050984

---

**Box No. V Reasoned statement under Rule 43*bis*.1(a)(i) with regard to novelty, inventive step or industrial applicability; citations and explanations supporting such statement**

---

1. Statement

Novelty (N)	Yes: Claims	2-24,27-32
	No: Claims	1,25,26
Inventive step (IS)	Yes: Claims	2-24,27-32
	No: Claims	1,25,26
Industrial applicability (IA)	Yes: Claims	1-32
	No: Claims	

2. Citations and explanations

see separate sheet

---

**Box No. VIII Certain observations on the international application**

---

The following observations on the clarity of the claims, description, and drawings or on the question whether the claims are fully supported by the description, are made:

see separate sheet

**Re Item V**

**Reasoned statement with regard to novelty, inventive step or industrial applicability;  
citations and explanations supporting such statement**

Reference is made to the following document:

**D1:** CAVIEDES J ET AL: "No-reference sharpness metric based on local edge kurtosis" PROCEEDINGS 2002 INTERNATIONAL CONFERENCE ON IMAGE PROCESSING. ICIP 2002. ROCHESTER, NY, IEEE, US, vol. VOL. 2 OF 3, 22 September 2002 (2002-09-22), pages 53-56, XP010607508 ISBN: 0-7803-7622-6

**1. Lack of novelty**

The present application does not meet the criteria of Article 33(1) PCT, because the subject-matter of claims 1, 25 and 26 is not new in the sense of Article 33(2) PCT.

The document D1 discloses (the references in parentheses applying to this document):

**1.1 Claims 1 and 26**

*A method for measuring sharpness in an image or picture comprising: partitioning the image or picture into one or more blocks, each of which has a predetermined size and repeating the following for each of the one or more blocks (11) (D1: abstract, fig. 2): determining a kurtosis-based sharpness metric of the image (12) (D1: abstract, fig. 2, where for each block enclosing an edge pixel, the Kurtosis value is computed); and compensating the kurtosis-based sharpness metric to account for differences in sharpness enhancement in a horizontal direction and a vertical direction (13) (D1: abstract, section 3, fig. 2, where the number of edge pixels (detected in the process described in section 3 of D1) in the horizontal and vertical directions characterizes the enhancement asymmetry in a horizontal direction and a vertical direction. Furthermore, the Kurtosis values, each computed for an edge pixel block, are averaged. This averaging is "compensating the kurtosis-based sharpness metric to account for differences in sharpness enhancement in a horizontal direction*

and a vertical direction").

The claim 26 corresponds to the claim 1 and is therefore also not novel.

1.2 Claim 25

*A method for measuring sharpness in an image or picture comprising: performing a Discrete Cosine Transformation on each of a plurality of blocks of a predetermined size of the image (D1: abstract, fig. 2); and compensating for asymmetry using information on a number of edge pixels and an energy content of one or more vertical edges and one or more horizontal edges in each of the plurality of blocks (13) (D1: abstract, section 3, fig. 2, where the number of edge pixels (detected in the process described in section 3 of D1) in the horizontal and vertical directions characterizes the enhancement asymmetry in a horizontal direction and a vertical direction. Furthermore, the Kurtosis values, each computed for an edge pixel block, are averaged. This averaging is "compensating the kurtosis-based sharpness metric to account for differences in sharpness enhancement in a horizontal direction and a vertical direction". The compensating step uses indeed information on a number of edge pixels and the Kurtosis values (one Kurtosis value being computed for one edge pixel block) are computed based on DCT transform of edge pixel blocks i.e. based on "energy content of one or more vertical edges and one or more horizontal edges in each of the plurality of blocks").*

2. **Dependent claims, positive assessment**

The combination of the features of dependent claims 2-24 and 27 -32 is neither known from, nor rendered obvious by, the available prior art.

**Re Item VIII**

**Certain observations on the international application**

1. The following wording of the claim 1 seems to be unclear: "[...] and **repeating the following for each of the one or more blocks (11): determining a kurtosis-based sharpness metric of the image (12); and compensating the kurtosis-based sharpness metric to account for differences in sharpness enhancement in a horizontal direction and a vertical direction (13)**".

In the light of the description, p.8, l.5-22, it seems that the Kurtosis-based sharpness metric is determined for the whole image and that the correction terms added to this metric to account for asymmetrical sharpness enhancement are also statistics computed over the whole image (eg. **average** number of edge pixels per block, energies that are calculated over the **entire image, number of blocks** that contain edges). Hence, "*determining a kurtosis-based sharpness metric of the image (12); and compensating the kurtosis-based sharpness metric to account for differences in sharpness enhancement in a horizontal direction and a vertical direction (13)*" are NOT repeated for each of the one or more blocks.

2. Although claims 1 and 25 have been drafted as separate independent claims, they appear to relate effectively to the same subject-matter and to differ from each other only with regard to the definition of the subject-matter for which protection is sought and in respect of the terminology used for the features of that subject-matter. The aforementioned claims therefore lack conciseness and as such do not meet the requirements of Article 6 PCT.
3. It seems that the apparatus claim 27 is dependent upon the claim 26 of the same category and not upon the method claim 25
4. Claim 4 (resp. 7, 10) comprises all the features of claim 3 (resp. 5 or 6, 8 or 9) and is therefore not appropriately formulated as a claim dependent on the latter (Rule 6.4 PCT).

BEST AVAILABLE COPY